

## WASTE FEW ULL - Clarifying Impacts: Academic and 'Societal'

Western Cape	Sao Paulo	Rotterdam	Bristol
Instrumental (e.g. Actual changes in policy or practice)			
<p>Instrumental change to 'practice':</p> <ul style="list-style-type: none"> <li>• <i>Provision of small-scale, appropriate tech. food growing/water purification 'infrastructure'</i>: operated by local community members, it uses integrated nature-based processes for the treatment of water to a quality to support food gardens, and renewable energy to power the pumps that are required to abstract and distribute water around the site.</li> <li>• <i>Research 'practice'</i>: The site offers opportunities for multi-disciplinary exchanges among researchers and attracts an interdisciplinary interest who are raising new research questions to address the grand challenges on the site and in the context.</li> </ul>	<ul style="list-style-type: none"> <li>• The SPIN tool - Sustainability Policy Innovation Network - is being adopted as a decision-making support for policy-makers, producers and academics involved in the Atlantic Rainforest food production areas (e.g. "Conexão Mata Atlântica", the Interamerican Bank of Development, and "Brasil Orgânico", an agroecological business association, among others). A Delphi cycle of foresight is applied in order to have policy strategies for the transition.</li> </ul>	<p style="text-align: center;">N/A</p> <p><i>(the Rotterdam ULL was based around a PhD; the global pandemic also hindered practitioner engagement)</i></p>	<p><b>Helped secure successful bid for 'Going for Gold' City Consortium:</b></p> <ul style="list-style-type: none"> <li>• The WASTE FEW ULL Project contributed "most definitely" to Bristol's successful Going for Gold bid, which saw Bristol become only the second city in the UK to be awarded 'Gold Sustainable Food City': <a href="https://www.goingforgoldbristol.co.uk/bristol-named-gold-sustainable-food-city/">https://www.goingforgoldbristol.co.uk/bristol-named-gold-sustainable-food-city/</a>.</li> <li>• <a href="https://www.resourcefutures.co.uk/food-waste-collaboration-helps-secure-bristols-gold-sustainable-food-cities-award/">https://www.resourcefutures.co.uk/food-waste-collaboration-helps-secure-bristols-gold-sustainable-food-cities-award/</a></li> <li>• The WASTE FEW ULL project was "extremely helpful in bringing key actors together, digging deeper on specific areas of expertise, connecting practitioners with academics, creating a space where we can dig in together, and testing One City Plan targets". (Bristol Food Network)</li> <li>• The bid refers specifically to the micro-valuation generating through WASTE FEW ULL, which was "very helpful" and "gave confidence" (in supporting so clearly the waste hierarchy)</li> </ul> <p><b>Augmented waste campaign:</b></p> <ul style="list-style-type: none"> <li>• Bristol Waste will be using the micro-valuation work in its campaign this year to underpin waste hierarchy (2022). Can "help evidence need for waste hierarchy when talking to local authorities" "people often good at recycling, but they miss the broader picture" (e.g. reduction before recycling) (Resource Futures) "Localised, factual data" (Bristol Waste)</li> </ul> <p><b>New framework being used:</b></p> <ul style="list-style-type: none"> <li>• "The Schumacher Institute's new 'Hexalemma' framework – see 'Conceptual' section below - is now being used to look at energy transition involving a major UK Distribution Systems Operator (DSO)." (Schumacher Institute)</li> </ul>
Evidence			

			<ul style="list-style-type: none"> <li>• Testimonials from Bristol Food Network, Resource Futures and Bristol Waste.</li> <li>• Publicly available material from Going for Gold material, Bristol Waste campaign material, and the Schumacher Institute</li> </ul>
<b>Conceptual</b> (E.g. Broad new understanding / awareness-raising)			
<ul style="list-style-type: none"> <li>• Improved understanding of FEW in practice.</li> <li>• The concept of the nexus and the integration of each component has shifted the conceptual into a field scale application.</li> <li>• New questions have arisen about the risk of using treated water which has resulted in studies on potential health risk in food (vegetables and fish), water and soil. As a direct result, studies have shifted to identify contaminants of emerging concern in surface and ground water.</li> </ul>	<ul style="list-style-type: none"> <li>• The SPIN tool is enabling increased understanding and awareness raising in the food production community.</li> </ul>	<ul style="list-style-type: none"> <li>• Established new understanding of “Waste Resource Paradox” phenomenon, which may hinder further acceleration towards circular economy.</li> <li>• Awareness was raised among BlueCity Lab management and start-up entrepreneurs to sufficiently record and monitor material flow and resource flows in the building as well as into and out from the building.</li> </ul>	<p><b>Macro-economic valuation flags key strategic barriers to achieving targets:</b></p> <ul style="list-style-type: none"> <li>• The newly integrated conceptual macro-economic/scenario model has raised considerable awareness of potential macro-economic implications of food waste targets across key members of the Food Waste Action Group, especially with regards who might lose out and the implications for the One City Plan. It <i>“helps shape directions of solutions...walk you through that complexity...see ‘shapes’”</i> (Resource Futures). It is <i>“fascinating...makes you think about things differently...needs a bigger conversation”</i> <i>“this is the best data we’ve got”</i> (Bristol Waste); <i>“very helpful for us taking a look at the One City Plan goals”</i> (Bristol Food Network).</li> </ul> <p><b>New conceptual framework developed:</b></p> <ul style="list-style-type: none"> <li>• <i>“A new framework emerged from the project, developed/led by the Schumacher Institute, to explore dilemmas in policymaking - the ‘Hexalemma’ – with six components considered in decision making for complex systems: resilience, sustainability, efficiency, reliability, safety, and equity.”</i> (Schumacher Institute)</li> </ul>
Evidence			
<ul style="list-style-type: none"> <li>• The project is capable measurement and demonstration of FEW.</li> </ul>		<ul style="list-style-type: none"> <li>• Feedbacks from workshop participants, individual interviews with Lab representatives, immediate citations of the respective scientific publication in the first year.</li> </ul>	<ul style="list-style-type: none"> <li>• Testimonials from Bristol Food Network, Resource Futures, Bristol Waste and Schumacher Institute.</li> </ul>
<b>Capacity-Building</b> (E.g. Training of students or professionals, CPD)			
<ul style="list-style-type: none"> <li>• Researchers and students have learnt new methods and the application of science to a large-scale project.</li> </ul>	<ul style="list-style-type: none"> <li>• The diffusion of the SPIN tool is the capacity building path.</li> </ul>	<ul style="list-style-type: none"> <li>• Several workshops with civil servants and consultants on Circular economy in the Netherlands aimed at capacity</li> </ul>	<p><b>Non-market valuation provides important evidence</b></p> <ul style="list-style-type: none"> <li>• The non-market valuation has provided Resource Futures, Bristol Waste and Bristol Food Network with important</li> </ul>

<ul style="list-style-type: none"> <li>Community members have learnt about food gardening and how to approach this activity in a challenging socio-economic setting.</li> </ul>		building based on the novel Circular Decision-Making Tree heuristic. <ul style="list-style-type: none"> <li>Rachel Greer also presented her Rotterdam findings to fellow PhD students and industry professionals in during further disseminations events.</li> </ul>	evidence underpinning the waste hierarchy, which they will use in ongoing campaigns. <b>Macro valuation flags key strategic barriers to achieving targets</b> <ul style="list-style-type: none"> <li>See above on 'Conceptual'</li> </ul>
Evidence			
<ul style="list-style-type: none"> <li>Three Masters project completions.</li> <li>One PhD - final draft stage.</li> </ul>		<ul style="list-style-type: none"> <li>Number of participants in NEST PhD school sessions, where Rachel presented.</li> <li>Number of participants in Dutch and international workshops.</li> </ul>	<ul style="list-style-type: none"> <li>Testimonials from Bristol Food Network, Resource Futures and Bristol Waste.</li> </ul>
<b>Attitudinal or cultural* (research)</b> (E.g. Increased willingness in general to engage in new collaborations)			
<ul style="list-style-type: none"> <li>Limited engagement with local authorities who could be in a stronger position to effect a transition towards a more just society and environment.</li> </ul>	<ul style="list-style-type: none"> <li>It is not possible to measure such an increasing. But the transition community in this region of Brazil has yet an astonishing willingness behaviour. SPIN will be a more rational support for the network enforcement, once it has a governance sustainable pattern ensemble.</li> </ul>	<ul style="list-style-type: none"> <li>Existing networks between DRIFT researchers and policy makers, civil servants as well as industry and civil society representative were strengthened.</li> </ul>	<b>Key partner supported</b> <ul style="list-style-type: none"> <li>"The project added to the capacity, credibility and profile of The Schumacher Institute. As an independent think tank its reputation has been greatly enhanced by participating. It demonstrated the value of systems approaches to complex interactions of infrastructure and people." (Schumacher Institute)</li> </ul>
Evidence			
<ul style="list-style-type: none"> <li>Limited evidence</li> </ul>			<ul style="list-style-type: none"> <li>Testimonial from the Schumacher Institute.</li> </ul>
<b>Attitudinal or cultural* (practical)</b> (E.g. willing to change agriculture practices / drinking or eating habits)			
<ul style="list-style-type: none"> <li>Engagement with local community workers and leadership in the informal settlements.</li> <li>No change in attitudes to food and diet as yet, other than conversations about food and diet.</li> </ul>	<ul style="list-style-type: none"> <li>SPIN will be used as a guide for a more oriented and systematic ensemble of practices in São Paulo State agricultural practices / policies.</li> </ul>	--	The project was not targeted at the lay public and our key stakeholder partners are already well versed in much of this work, being experts in each of their areas.
Evidence			

			N/A
<b>Enduring connectivity</b> (E.g. Follow-on interactions – joint proposals, reciprocal visits, workshops, relationships)			
<ul style="list-style-type: none"> <li>Strengthened relationships with research institutes local and international; building on knowledge gained to write new proposals with partners; ongoing activity with leaders and members of the informal settlement.</li> </ul>	<ul style="list-style-type: none"> <li>An extensive network of food production agents has been formed. Details of ongoing interactions yet to be determined.</li> </ul>	<ul style="list-style-type: none"> <li>Not yet decided, to be on the agenda for the final project meeting in March.</li> </ul>	<p><b>Enabled and forged much closer links between key actors</b></p> <ul style="list-style-type: none"> <li><i>The project forged close ties among the ULL participants, which means that future work by the Schumacher Institute in the city of Bristol on plans and initiatives involving the FEW nexus will be smoother and more likely to succeed than otherwise.</i> (Schumacher Institute)</li> <li><i>“Very useful in bringing key actors together, which wouldn’t have happened otherwise...I don’t think you can ever underestimate the power of getting people together...it’s been empowering with key people on the Food Waste Action Group”</i> (Bristol Food Network)</li> </ul> <p><b>Ongoing dialogue and invitations to work with the Food Waste Action Group</b></p> <ul style="list-style-type: none"> <li>It has been agreed that presentations to the Food Waste Action Group would be welcomed on the economics work with suggestions of who at Bristol City Council should be approached (Cabinet level and One City Team).</li> </ul>
Evidence			
<ul style="list-style-type: none"> <li>New research funding achieved through this FEW project</li> <li>Growing interest from community members with more meetings and discussions about future developments at the ULL.</li> <li>Interest from other local authorities in upscaling the work to their municipalities.</li> <li>Funding support from provincial government to develop the ULL further.</li> </ul>			<ul style="list-style-type: none"> <li>Testimonials from Bristol Food Network, Resource Futures and Bristol Waste.</li> </ul>